Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of Improving Wireless
Emergency Alerts and
Community-Initiated Alerting

PS Docket No. 15-91

THE CONSUMER AND PUBLIC SAFETY BENEFITS OF A DEVICE-ENHANCED WIRELESS EMERGENCY ALERT SERVICE

It has been more than 8 years since the FCC's rules for the Wireless Emergency Alert (WEA) service were finalized. The subsequent launch of the WEA system marked the beginning of a new era for mass notification in this country. For the first time, the Commission leveraged the capability of the wireless network, through cell-broadcast technology, to send alerts. But as the comments to the Commission's NPRM suggest, the current system is limited in its efficacy for a number of reasons, most notably that alert-originators cannot confine their emergency messaging to the area that they would like to alert, that not enough information is included in the alerts to educate consumers, that messages cannot be customized to address consumers' individual needs (different languages, accessibility needs, etc.) and that the system is not set up to evolve over time. In addition, the system as currently configured is not designed for enhanced revenue generation, which would facilitate ongoing investment and innovation. Each of these issues was raised in the NPRM, and each can be improved with the incorporation of the handset's capabilities into the WEA service. If the WEA system is to become the center of an alert-ready nation, as it was intended, it must harness the incredible power and ever-evolving capability contained in handsets.

Following is a list of benefits of a handset-enhanced upgrade to WEA that will address issues/concerns raised by the Commission in the NPRM, and by commenters in the record. Below that information is a list and description of additional benefits that will follow from incorporation of a handset-enhanced capability into the WEA service.

IMPROVE WEA GEO-TARGETING

- NPRM: *"[W]e seek comment on other approaches to improve geo-targeting, including device-based geo-targeting solutions. . . Could device-based solutions complement network-based solutions to facilitate the delivery of even more granular WEA messages?" (NPRM at paragraph 39-40)*
- NEED: *Since the Commission adopted its WEA geo-targeting rules in 2008, there has been considerable interest among alert originators in developing more finely targeted WEA messages*.[1]

[1] NPRM at paragraph 35, siting *See, e.g., First Report and Order*, 23 FCC Rcd at 6164-65, ¶¶ 51-52; NWS May 21, 2015 *Ex Parte* Letter at 2 DANIEL GONZALES, DEPARTMENT OF HOMELAND SECURITY, SCIENCE AND TECHNOLOGY, WIRELESS EMERGENCY

Public Safety's comments are clearly expressing the need for a roadmap to improve the capabilities of the WEA system to geo-target and geo-fence notifications.[2] A review of the record suggests that almost eighty percent of the public safety commenters are calling for greater granularity in the delivery of alerts. This issue has been raised from coast to coast,[3] from large community to small,[4] and from Public Safety Associations to a military base.[5]

- SOLUTION: A device-enhanced WEA will significantly improve the ability of alert-originators to geo-target their emergency messages. By providing the alert area coordinates to the device, programmers will be able to connect the alert area to the location-awareness capabilities of the device, allowing the device to determine if it is in the alert area, and therefore render the alert.

INCREASED PARTICIPATION BY STAKEHOLDERS (PSAPS/CARRIERS)

- NPRM: *"Specifically, in order to empower state and local alert originators to participate more fully in WEA,[6] and to enhance the utility of WEA as an alerting tool,[7] this Notice of Proposed Rulemaking (Notice) proposes revisions to our rules designed to improve the clarity of WEA messages, to ensure that WEA alerts reach only those individuals to whom a WEA alert is relevant, and to establish a WEA testing program that will improve the effectiveness of the system for public safety officials and the public."* (NPRM paragraph 1)
- NEED: The Commission needs to adopt rules that encourage local public safety/alert originators to embrace and utilize the WEA service. In the over four years since its inception, only forty-eight entities have sent alerts over the WEA system. In total, only 622 out of over 6,500 (some say 39,000) alert originators have registered to deliver alerts.[8] And perhaps most telling, those 622 qualified alert originators pale in comparison to the 4,400 entities who have invested in opt-in mass notification systems in an effort to meet their alert notification needs, but at the same time limit distribution of the alert to the originator's constituents.[9] Nixle, one of the existing opt-in

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ALERTS MOBILE PENETRATION STRATEGY 120, 131 (2013) (*WEA Mobile Penetration Strategy*) (expressing that alert originators desire improvements in geo-targeting to prevent alert fatigue and recommending improvements to geo-targeting "as soon as possible").

[2] Indiana Dept of HS, California Gov Office of Emergency Services, Pinellas County FL Emergency Management, U.S. Geological Survey, APCO International, Nevada Office of Emergency Management, NOAA/National Weather Service, City of Houston Mayor Office of Public Safety and Homeland Security, New York City Emergency Management Dept., Brevard County, FL Emergency Management , Kansas Division of Emergency Management, Jefferson Parish Emergency Management, Fort Riley Emergency Management.

[3] Douglas County WA to Brevard County FL.

[4] New York City Emergency Management to Vail Police Dept and Vail Public Safety.

[5] APCO to Fort Riley Emergency Management.

[6] The term "alert originator" refers to a federal, state, territorial, tribal, or local entity authorized by FEMA to use the Integrated Public Alert and Warning System (IPAWS) to issue critical public alerts and warnings in emergency situations. The Federal Emergency Management Agency (FEMA) recognizes "alerting authorities," *e.g.*, federal, state, territorial, tribal, and local authorities that have completed the necessary authentication steps to use IPAWS. *See* FEMA, ALERTING AUTHORITIES, https://www.fema.gov/alerting-authorities (last visited Jun. 3, 2015).

[7] WEA was formerly known as the Commercial Mobile Alert System (CMAS). In 2013, the Public Safety and Homeland Security Bureau amended its Part 10 rules to change the name "Commercial Mobile Alert System" (CMAS) to "Wireless Emergency Alert" (WEA). *See* Commercial Mobile Alert System, PS Docket No. 07-287, *Order*, 28 FCC Rcd 1460 (PSHSB 2013). With this action we close CMAS PS Docket No. 07-287, and open a new docket, PS Docket No. 15-91, for WEA.

[8] IPAWS Filing NPRM dated: 1/6/2016.

[9] Hyper Reach NPRM filing dated 1/13/2016. "We estimate that almost 1,900 counties and more than 2,500 municipalities have access to such a MENS (commercial mass emergency notification service) system. Collectively, we believe these systems cover more than 80% of the US population."

mass notification system companies, reports on their web site that their system is "relied on by over 8000 agencies, fire and police departments, schools, hospitals."[10] In the record, public safety/alert originators have identified limitations in the service as an explanation for why it is not being used.

- SOLUTION: Improved geo-fencing and increased information flow and personalization of the messages will remove a major barrier to usage by public safety/alert originators, thereby increasing participation in WEA.

FACILITATE CONTINUOUS INVESTMENT AND INNOVATION INTO WEA

- NPRM: *"[W]e seek comment on whether improved geo-targeting technology will increase opportunities for wireless providers to offer beneficial services to the companies currently providing mass notification products to localities, employers, and school systems.*[11] *Specifically, will improved geo-targeting capabilities expand opportunities for wireless carriers and other parties to contract for services outside of WEA that are beneficial to the alert-originating community? We seek comment on whether there are other potential public/private partnerships that could further leverage WEA capabilities and bring additional innovative alerting services to communities."* (NPRM at paragraph 41)
- NEED: Create a revenue incentive that will help to drive continuous innovation into the WEA service as well as help to evolve and improve the provision of additional alerting capabilities to communities.
- SOLUTION: A handset-enhanced WEA will create a geo-targeted and geo-fenced service that will allow carriers to develop and deliver a geo-targeted service to communities and other organizations that can generate billions of dollars in revenue, facilitating ongoing investment and innovation in WEA.

CONTENT IN WEA ALERTS -- PROVIDE ADDITIONAL INFORMATION

- NPRM: *"We believe that allowing embedded references in WEA messages will improve alert quality and accessibility by offering additional, specific information, and could reduce the risk of network congestion by focusing consumer response, thereby minimizing "milling" behavior. We seek comment on this analysis."* (NPRM Paragraph 26)
- NEED: Provide consumers with as much relevant information as possible so that they can make informed decisions during emergency situations. To the extent possible, implement this additional capability in a way that minimizes impact on wireless networks.
- SOLUTION: There are two benefits that a handset-enhanced WEA will create to address this issue. First, by harnessing the power within the device, public safety/alert originators can develop with social scientists to pre-load key information within the device (i.e., move below ground during a tornado, seek shelter during a hurricane, move to higher ground during flooding) so as to limit the need to actually embed URLs that will increase broadband traffic. Pertinent and often-used safety information can be developed in advance and included in the WEA program and

[10] Nixle: "The Nixle engagement platform is relied on by over 8000 agencies, fire and police departments, schools, hospitals…" From the Nixle web site: http://www.nixle.com

[11] *See* Hutch McClendon, May 29, 2015 *Ex Parte* Letter at 4 (referencing ways in which WEA providers might leverage their alerting capabilities).

stored on the device. Second, by confining WEA messages only to the exact area where information is needed, network impact will be limited even if consumers launch a URL.

ENHANCE ACCESSABILITY OF WEA FOR PERSONS WITH DISABILITIES

- NPRM: *"We also seek comment on the efficacy of using embedded URLs to enhance accessibility of WEA for people with disabilities, senior citizens and persons with limited English proficiency, in addition to the general public."* (NPRM Paragraph 29)
- NEED: Enhance and evolve WEA in order to improve accessibility for consumers with disabilities.
- SOLUTION: A handset-enhanced WEA will incorporate the intelligence in the device and allow the instructions programmed in the device by the user to address various solutions for different accessibility needs, including converting text to speech, vibrate, flash and more in order to present the alert to each consumer in a personalized and usable format.

PROVISION OF MULTI-MEDIA BASED ALERTS

- NPRM: *"[W]e seek comment on whether it would serve the public interest to adopt rules governing the provision of multimedia-based alerts, including alerts that contain high-information maps that demonstrate the location of the alert recipient relative to an area affected by an imminent threat, and images of children, suspected abductors and vehicles in AMBER Alerts. We believe that providing multimedia-based alerts could significantly enhance the usefulness of the system, thereby advancing our public safety goals."* (NPRM Paragraph 30)
- NEED: Improve the usefulness to consumers by including maps to demonstrate a consumer's location within an alert area, and provide images or other relevant information to give consumers additional information to make informed decisions. NWS strongly supports the incorporation of graphical content in WEA messages, stating that this improvement would provide greater clarity in WEA messaging.[12]
- SOLUTION: A device-enhanced WEA will unlock both the mapping capability of the device as well as the location awareness capability, allowing for the creation of a map displaying the alert area and the position of the device within that area. Forwarding the alert area coordinates to the device will facilitate this. Additionally, a device-enhanced WEA will allow public safety alert originators to provide additional information in the alerts, including pictures and other enhanced multi-media information that will increase the usefulness of the service.

PROVIDING MULTILINGUAL WEA MESSAGES

- NPRM: *"We seek comment on whether the fundamental technical problems that limited the ability of Participating CMS Providers in 2008 to provide alerts in languages other than English remain barriers to implementing Congress' vision. . . . Alert originators state that they want to "[u]se language in the WEA Alert Message that best conveys who is at risk given message length constraints."[13] That could reasonably include a language, other than English, that best serves a particular community. Accordingly, we seek comment on the benefits of supporting multilingual WEA alerts in order to advance our goals for promoting community participation. . . . We agree*

[12] NPRM at paragraph 30, siting NWS May 21, 2015 *Ex Parte* Letter at 1.
[13] *CSRIC WEA Messaging Report* at 28.

with MMTC that all Americans, regardless of the language they speak, should have access to emergency information." (NPRM Paragraphs 32-33)

- NEED: Promote community participation and consumer usage and action by providing alerts, where available, in languages other than English. FEMA recommends that WEA should be enhanced to support delivery of alert messages in languages other than English if the alert is made available by the originator in other languages.[14]
- SOLUTION: A device-enhanced WEA will allow consumers to choose a default language for the delivery of WEA messages. Programming at the handset level will allow a WEA message to play in a default language, as long as the message is delivered to the device in that language. In addition, pertinent and often-used safety information, as described earlier, can also be stored in multiple languages on the device.

PERSONALIZATION OF THE WEA SERVICE

- NPRM: *"*Further, we seek comment on specific factors that lead consumers to opt out of receiving WEA messages.[15] For example, do consumers regularly opt out of receiving WEA messages because they receive alerts that are not relevant to their geographic location? If so, would the new geo-targeting rules we propose today reduce consumer opt-out?*"* (NPRM Paragraph 63)
- NEED: Limit the message to only those relevant and clearly communicate they are receiving a targeted message.
- SOLUTION: A device-enhanced WEA will allow more granular geo-targeting of much smaller areas to better personalize the message (a neighborhood instead of a county) and then clearly display on a map the granularity of the alert area being targeted and the device location within the alert zone, thus confirming why the user is receiving the alert.

ADDITIONAL BENEFITS OF A HANDSET-ENHANCED WEA SERVICE

HANDSET-ENHANCED WEA IS EFFECTIVE EVEN WHEN NETWORK IS COMPROMISED

- NEED: When the network is impacted by a storm, and power to cell sites is down, or cows/colts are used, WEA still will need to be geo-fenced so that only consumers in the alert area receive the message.
- SOLUTION: Handset-enhanced WEA will create a geo-fenced capability with any network architecture, even if it is compromised or evolving (COWs/COLTs/Boomer Cells) due to an emergency situation (flooding, power outages, etc.).

IMPROVES WEA IN BOTH URBAN AND RURAL AREAS

- NEED: A solution that improves geo-fencing and geo-targeting in all areas, urban and rural, not just those areas with a dense cell site configuration, or small-cell deployment, or upgraded network.

[14] NPRM at paragraph 32, siting FEMA Jun. 18 *Ex Parte* at 2-3.

[15] *See WEA Mobile Penetration Strategy* at 126 (stating that "[i]f users find the content and structure of WEA messages to be confusing, they may decide to opt out of the system").

- SOLUTION: Handset-enhanced WEA will add to geo-fencing benefits in areas where small-cells are deployed (urban) and where they are not (rural), in densely built out network areas, and those with only large-area boomer cells, in 5G areas, and older architecture.

STANDARDIZES WHO GETS THE WEA MESSAGE

- NEED: A solution that allows alert originators to have a sense of who will receive the alert, not differing from carrier to carrier, market to market, network to network.
- SOLUTION: Handset-enhanced will ensure that everyone inside the alert area, and not those outside, receives the alert. As long as the carriers alert at least 100% of the alert area, the device's location capabilities can be used to target the message.

FUTURE-PROOFS THE WEA SERVICE

- NEED: A solution that will evolve as wireless service evolves.
- SOLUTION: Handset-enhanced WEA will treat the handset like an intelligent device and continuously leverage improvements while integrating current and future broadcast mediums (WiFI, EMBMS, internet of things, satellite, etc.).

SUMMARY

In summary, upgrading the WEA service to incorporate the incredible intelligence in mobile devices will deliver a logical upgrade to the WEA service, driving an extraordinary range of improvements both for our Nation's citizens and our public safety/alert originator representatives. In short, a device-enhanced improvement to WEA will:

- Provide public safety/alert originators with the capability to target alerts to the most granular of levels in order to address all of the range of emergencies that they may face;
- Confirm why the person is receiving the alert by showing the device's position within the polygon on a well-defined map;
- Display the message in the preferred language of the device user if it is available;
- Follow the instructions set in the device to convert the text to speech, vibrate and flash;
- Allow the user to access additional detailed instructions for what to do during a tornado, flash flood, hurricane, etc. already stored on the device, thereby often removing the need for alert originators to imbed links into the alert and, as a result, limiting the impact on the wireless networks;
- Create the opportunity for public-private partnerships that will generate revenue for WEA participants and will lead to a continual evolution of the WEA service and participation by all wireless providers;
- Improve WEA performance in the aftermath of natural or man-made disasters as wireless carriers evolve their networks, focus fuel resources on certain towers, or deploy COWs/COLTs. Device-based capability will allow for geo-targeting even as cell site configuration evolves.

By passing the alert area coordinates generated by the public safety/alert originator to the device along with the alert message, and by allowing WEA to connect with the application layer of the device, the WEA service will evolve to address a significant range of issues raised by the FCC in the NPRM and by commenters to the NPRM.